

WHAT IS CLAIMED IS:

1. A surgical clip for retaining tissue and for delivery by an applicator of type having one or more force application members, the clip comprising:

5 a bending beam having two ends and a sufficient shape memory to generally return to a relaxed position and to hold the tissue together after being forcibly distorted to a stressed position;

10 at least two constraint segments having one end thereof operably coupled to a respective end of the bending beam, the constraint segments being sufficiently rigid to retain the tissue when the bending beam returns to the relaxed position; and

15 the clip presenting at least two expansion engagement structures adapted for engaging the force application members such that the force application members of the applicator may be used to apply a force to the clip to distort it from the relaxed position to the stressed position; and

20 wherein the surgical clip is formed substantially of a bioabsorbable material, whereby the surgical clip is absorbed by a living tissue over a period of time.

2. The surgical clip of claim 1, the constraint segments each comprising a piercing portion sufficiently sharp to pierce the tissue.

25 3. The surgical clip of claim 1, in which the bending beam has a generally curved shape when in the relaxed position.

4. The surgical clip of claim 1, in which the engagement structures comprise bores into the
clip and the force application members comprise pins.

5. The surgical clip of claim 4, the bores each having an axis, the constraint segments lying in a common plane in which the axis of the bores is generally orthogonal to the plane.

6. The surgical clip of claim 4, the bores each having an axis, the constraint segments lying in a common plane in which the axis of the bores is generally parallel to the plane.

7. The surgical clip of claim 4, the bores each having an axis, the constraint segments lying in a common plane in which the axes of the bores is generally coincident with the plane.

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8. The surgical clip of claim 4, the bores each having an axis, in which the axes of the bores are coaxial with one another when the clip is in the relaxed state.

10 9. The surgical clip of claim 1, further comprising a ridge on the bending beam.

10. The surgical clip of claim 1, in which the bending beam is offset from the two constraint segments.

11. The surgical clip of claim 1, in which the engagement structures are proximate the juncture between the bending beam and the constraint segments.

12. The surgical clip of claim 1, in which the engagement structures are at a fixed location on the surgical clip.

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13. A method for surgically joining living tissue, the method comprising the steps of:
applying force application members of an applicator to a surgical clip, the clip being formed from a bioabsorbable material and having engagement structures adapted to mate with the force application members;

25 forcing the surgical clip to assume a stressed, open configuration with the applicator;
enveloping the living tissue within the surgical clip;
relaxing the force on the surgical clip such that the surgical clip may elastically return to an unstressed state whereby the living tissue is pressed together; and

disengaging the force application members of the applicator from the surgical clip.

14. The method of claim 13, further comprising the step of piercing the living tissue with a
5 piercing portion of the surgical clip.

15. A surgical clip for retaining tissue and for delivery by an applicator of type having one or
more force application members, the clip comprising:

10 means for resiliently returning to a relaxed position after deformation having two
ends and a sufficient shape memory to return to a relaxed position after being forcibly
distorted to a stressed position;

means for constraining tissue coupled at each end of the resilient
return means, the constraining means being sufficiently rigid to retain the tissue when the
resilient return means returns to the relaxed position;

the clip presenting at least two means for mating with the force application
members such that the applicator may be used to apply a force to the clip to distort it
from the relaxed position to the stressed position; and

wherein the surgical clip is formed substantially of a bioabsorbable material, whereby the
surgical clip is absorbed by a living tissue over a period of time.

16. The surgical clip of claim 15, the constraining means each comprising a piercing portion
sufficiently sharp to pierce the tissue.

17. The surgical clip of claim 15, in which the receiving means comprise a bore into the clip
25 and the engagement member comprises a pin.

18. The surgical clip of claim 17, the bores each having an axis, the constraining means lying
in a common plane in which the axis of the bores is generally orthogonal to the plane.

19. The surgical clip of claim 17, the bores each having an axis, the constraining means lying in a common plane in which the axis of the bores is generally parallel to the plane.

20. The surgical clip of claim 17, the bores each having an axis, the constraining means lying in a common plane in which the axes of the bores is generally coincident with the plane.

5 21. The surgical clip of claim 17, the bores each having an axis, in which the axes of the bores are coaxial with one another when the clip is in the relaxed state.

10 22. The surgical clip of claim 15, further comprising a ridge on the resilient return means.

15 23. The surgical clip of claim 15, in which the resilient return means has a generally curved shape when in the relaxed position.

24. A surgical clip for retaining tissue and for delivery by an applicator of type having one or more force application members, the clip comprising:
a bending beam having two ends and a sufficient shape memory generally return to a relaxed position and to hold the tissue together after being forcibly distorted to a stressed position;
at least two constraint segments having one end thereof operably coupled to a respective end of the bending beam, the constraint segments being sufficiently rigid to retain the tissue when the bending beam returns to the relaxed position;
the clip presenting at least two expansion engagement structures on fixed locations on the clip adapted to engage the force application members such that the force application members of the applicator may be used to apply a force to the clip to distort it from the relaxed position to the stressed position; and
25 wherein the surgical clip is formed substantially of a bioabsorbable material, whereby the surgical clip is absorbed by a living tissue over a period of time.

25. The surgical clip of claim 24, the constraint segments each comprising a piercing portion sufficiently sharp to pierce the tissue.

26. The surgical clip of claim 24, in which the bending beam has a generally curved shape
5 when in the relaxed position.

27. The surgical clip of claim 24, in which the engagement structures comprise bores into the clip and the force application members comprise pins.

10 28. The surgical clip of claim 27, the bores each having an axis, the constraint segments lying in a common plane in which the axis of the bores is generally orthogonal to the plane.

15 29. The surgical clip of claim 27, the bores each having an axis, the constraint segments lying in a common plane in which the axis of the bores is generally parallel to the plane.

30. The surgical clip of claim 27, the bores each having an axis, the constraint segments lying in a common plane in which the axes of the bores is generally coincident with the plane.

20 31. The surgical clip of claim 27, the bores each having an axis, in which the axes of the bores are coaxial with one another when the clip is in the relaxed state.

32. The surgical clip of claim 24, further comprising a ridge on the bending beam.

33. The surgical clip of claim 24, in which the bending beam is offset from the two constraint
25 segments.

34. The surgical clip of claim 24, in which the engagement structures are proximate the juncture between the bending beam and the constraint segments.

35. A surgical clip for retaining tissue and for delivery by an applicator of type having one or more force application members, the clip comprising:

5 a bending beam having two ends and a sufficient shape memory generally return to a relaxed position and to hold the tissue together after being forcibly distorted to a stressed position;

10 at least two constraint segments having one end thereof operably coupled to a respective end of the bending beam, the constraint segments being sufficiently rigid to retain the tissue when the bending beam returns to the relaxed position;

15 the clip presenting at least two expansion engagement structures located proximate the ends of the bending beam and proximate the ends of the constraint segments, the expansion engagement structures adapted to mate with the force application members such that the force application members of the applicator may be used to apply a force to the clip to distort it from the relaxed position to the stressed position; and

20 wherein the surgical clip is formed substantially of a bioabsorbable material, whereby the surgical clip is absorbed by a living tissue over a period of time.

25 36. The surgical clip of claim 35, the constraint segments each comprising a piercing portion sufficiently sharp to pierce the tissue.

37. The surgical clip of claim 35, in which the bending beam has a generally curved shape when in the relaxed position.

38. The surgical clip of claim 35, in which the engagement structures comprise bores into the 25 clip and the force application members comprise pins.

39. The surgical clip of claim 37, the bores each having an axis, the constraint segments lying in a common plane in which the axis of the bores is generally orthogonal to the plane.

40. The surgical clip of claim 37, the bores each having an axis, the constraint segments lying in a common plane in which the axis of the bores is generally parallel to the plane.

41. The surgical clip of claim 37, the bores each having an axis, the constraint segments lying in a common plane in which the axes of the bores is generally coincident with the plane.

5 42. The surgical clip of claim 37, the bores each having an axis, in which the axes of the bores are coaxial with one another when the clip is in the relaxed state.

10 43. The surgical clip of claim 35, further comprising a ridge on the bending beam.

44. The surgical clip of claim 35, in which the bending beam is offset from the two constraint segments.